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<NOTE>
Do Not Disturb! A Factor in Bed Site Relocation among Mahale Chimpanzees

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INTRODUCTION

Chimpanzees (*Pan troglodytes*) sleep in self-made beds in trees; the sleeping sites are associated with daily activity and selected to ensure safe, comfortable sleeping. In the daytime, chimpanzees forage within their home range. Therefore, sleeping site selection can be affected by the distribution of food resources. For example, chimpanzees in Kalinzu Forest, Uganda, prefer to make beds in fruit-rich areas (Furuichi & Hashimoto 2004), while chimpanzees in the savanna woodland of Ugalla, Tanzania, frequently select slopes close to water as bed sites (Ogawa *et al.* 2014). A slope is also a safe place that allows avoidance of predators, such as lions (*Panthera leo*) and leopards (*P. pardus*), because the slope underbrush is insufficiently dense to conceal these predators (Hernandez-Aguilar 2009; Ogawa *et al.* 2014).

The beds are made of branches, twigs and leaves, such that the comfort of beds may differ among bed tree species. In Semliki, Uganda, chimpanzees prefer a tree species with stiff branches because this affords firm, stable beds (Samson & Hunt 2014). Chimpanzees in Mahale, Tanzania, prefer tree species with greater total leaf area on the branch, because these yield leafier beds (Zamma & Ihobe 2015).

However, chimpanzees do not always make their beds in the most suitable tree, or in the optimum location. For example, fruiting trees may be good locations for beds to monopolize the available fruit (Fruth & Hohmann 1996; Basabose & Yamagiwa 2002), but sleep in fruiting trees might be disturbed by nocturnal frugivores (Fruth & Hohmann 1996). There are many animals in forests, and bed tree selection by chimpanzees is presumably limited by the activity of these animals.

The eastern red colobus (*Procolobus rufomitratus*) is the predominant prey species of Mahale chimpanzees (Hosaka 2015), but colobus monkeys sometimes counterattack chimpanzees that are attempting to hunt them (Hosaka 2002; Boesch *et al.* 2002); chimpanzees also occasionally detour to avoid a colobus (Boesch *et al.* 2002). Furthermore, it was reported in the early 2000s that colobus males in Mahale even began to attack chimpanzees that were not attempting to hunt them (Hosaka & Ihobe 2015).

In this paper, I report a case in which chimpanzees abandoned an attempt to make beds in a tree because of the threat posed by two red colobus monkeys.

METHODS

I conducted this research in Mahale Mountains National Park, Tanzania, in October and November 2016. In Mahale, 70 mammal species (11 orders) have been recorded (Ihobe 2015). I observed the M-group chimpanzees in the Park. During the study period, the mean time at which chimpanzees started making beds was 18:34 h (range: 18:19–19:11 h; $n = 15$).

OBSERVATION

On October 19, 2016, I observed a party consisting of two adult females (Zola and Puffy), their offspring (Zolfa, Zamma, and PF14), and an adult male (Primus).

Figure 1. Chimpanzees and a red colobus monkey. The chimpanzees attempted to hunt the red colobus monkey, but they hesitated to approach it. The photo was taken on October 23, 2006.

These chimpanzees were eating fruit in a tree at 18:09 h. At 18:34 h, Primus left the tree, and the others left it a few minutes later. I followed the splinter party that comprised the two adult females and their offspring.

At 18:35 h, Puffy ate the leaves of a herbaceous vine (this was the last observation made of the chimpanzees feeding that day). At 18:40 h, they climbed a *Lecaniodiscus fraxinifolius* tree and sat on branches. I observed old chimpanzee beds in the tree and also found two red colobus monkeys in a neighboring tree (I could not identify the tree species at the time, but it was probably an *Albizia glaberrima* tree). One of the colobus monkeys screamed and the other shook the branches. Zola and Puffy stayed in the *L. fraxinifolius* tree for a few seconds, but then descended. At 18:41 h, the chimpanzees climbed a second tree about 20 m from the first. However, at 18:43 h, the red colobus monkeys approached the second tree along the branches and threatened the chimpanzees again. Zola, Puffy, and their offspring left the tree and quickly walked away on the ground.

After 8 minutes, at 18:51 h, the chimpanzees climbed a third tree. I did not observe any red colobus monkeys near this third tree. At 18:52 h, Zola started to make a bed, which she finished at 18:55 h. Puffy finished making her bed at 18:56 h.

DISCUSSION

The chimpanzees, Zola and Puffy, likely wanted to make beds in the first tree. This tree was considered to be a suitable bed tree because it contained old chimpanzee beds, and they climbed the first tree at close to the mean starting time of bed making during the study period (18:34 h).

However, when the chimpanzees climbed the tree, red colobus monkey in a neighboring tree, which was believed to be the colobus sleeping site on that day, threatened the chimpanzees. Chimpanzees are known to prey on red colobus monkey (Hosaka 2015), so the colobus monkeys might attempt to chase off potential predators so that they do not disturb their sleep.

The chimpanzees descended the first tree within 1 minute of climbing it, which implies that they escaped from the red colobus monkeys at that time. In comparison with other study sites, such as Taï, Côte d'Ivoire, red colobus monkeys in Mahale are often aggressive towards chimpanzees (Figure 1; Boesch *et al.* 2002; Ihobe 2002; Hosaka & Ihobe 2015). In some cases, red colobus monkeys bite chimpanzees (Hosaka 2002). Therefore, when chimpanzees encounter a red colobus troop while moving in the forest, they sometimes either ignore it without attempting a hunt, or even change direction to avoid it (Boesch *et al.* 2002).

In Mahale, chimpanzees do not show a great response to the sound of footsteps at night (Zamma 2014). Nocturnal animals walking on the ground, such as bushpigs (*Potamochoerus larvatus*), cannot attack chimpanzees in trees, so chimpanzees may pay little attention to such animals. On the other hand, arboreal animals can disturb chimpanzees sleeping in beds in trees at night. To ensure a comfortable sleep, chimpanzees may make beds away from aggressive red colobus monkeys at dusk.

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